WHAT IS CLAIMED IS:

1. A reproduction apparatus for reproducing digital information recorded on an optical disc, comprising:

an optical pickup for reading said digital information recorded on said optical disc to have said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

information residue detecting means for detecting an amount of residue digital information remaining in said buffer memory; and

retry controlling means for controlling said one or more times of retry routines based on said amount of residue digital information detected by said information residue detecting means when said digital information fails to be read out of said optical disc.

2. A reproduction apparatus for reproducing digital information recorded on an optical disc, comprising:

an optical pickup for reading said digital information recorded on said optical disc to have said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more

times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

said electric signals are decoded by said signal decoding means for a time interval;

first time calculating means for calculating said time interval taken by said signal decoding means to discharge said electric signals decoded; and

retry controlling means for controlling said one or more times of retry routines based on said time interval calculated by said first time calculating means when said digital information fails to be read out of said optical disc.

3. A reproduction apparatus as set forth in claim 2, in which said buffer memory has at least two buffer memory sections consisting of an initial buffer memory section having said electric signals firstly stored at an initial time and a final buffer memory section having said electric signals finally stored at a final time; second time calculating means is for calculating the difference between said initial time and said final time for said electric signals to be stored in said initial and final buffer memory sections; and said retry controlling means is for controlling said one or more times of retry routines based on said difference between said initial time and said final time calculated by said second time calculating means.

4. A reproduction apparatus as set forth in claim 2 in which said digital information has a plurality of groups of picture unit recorded on said optical disc after being compressed under a specific format, each of said groups of picture unit being constituted by a plurality of pictures having a first picture, a last picture, and a plurality of intermediate pictures sequentially ordered between said first picture and said last picture; said electric signals are decoded by said signal decoding means and respectively indicative of said groups of picture unit; and said pickup driving means is for having said optical pickup skip said address for each of said groups of picture unit when said digital information fails to be read out of said optical disc.

5. A reproduction apparatus as set forth in claim 4, in which said digital information has a navigation pack and a plurality of groups of picture unit, said navigation pack including a data search information having respective first address, said digital information being recorded on said optical disc after being compressed under a specific format; and said retry controlling means is for controlling said one or more times of retry routines based on said data search information.

6. A reproduction apparatus as set forth in claim 4, in which said digital information has a video title set information and a plurality of groups of picture unit, said video title set information including a video title set time map having respective first address; and retry controlling means is for controlling said one or more times of retry routines based on said video title set time map.

7. A reproduction apparatus for reproducing digital information recorded on an optical disc, comprising:

an optical pickup for reading said digital information recorded on said optical disc to have said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

external damage detecting means for detecting external damages on the surface of said optical disc; and

retry controlling means for controlling said one or more times of retry routines based on said external damages detected by said external damage detecting

means; said one or more times of retry routines being repeated by a first retry time at a first address with said external damages and by a second routine time at a second address without said external damages, said first time being smaller than said second time.

8. A reproduction apparatus as set forth in claim 7, which further comprises first external damage registration means for registering addresses with external damages of said optical disc; and registering addresses means for storing said addresses with damages registered by said retry controlling means.

9. A reproduction apparatus as set forth in claim 8, which further comprises second external damage registration means constituted by a nonvolatile memory adapted to hold said digital information after the reproducing apparatus is out of power.

10. A reproduction apparatus for reproducing digital information recorded on an optical disc, comprising:

an optical pickup is movable in the radial direction of said optical disc to assume radial positions to read said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

radial position detecting means for detecting said radial positions of said optical pickup; and

retry controlling means for controlling said one or more times of retry

routines based on said radial position of said optical pickup detected by said radial position detecting means when said digital information fails to be read out of said optical disc.

11. A reproduction apparatus as set forth in claim 1, in which said electric signal has a newest address representative of a first section in said buffer memory and an oldest address representative of a second section in said buffer memory, said first section assuming a position spaced apart from said second section; and in which said buffer memory comprises a write pointer serving to indicate said newest address of said electric signal stored in said buffer memory, and a read pointer functioning to indicate said oldest address of said electric signal stored in said buffer memory.

12. A reproduction apparatus as set forth in claim 1, in which said retry controlling means has a retry counter indicative of said retry times and an upper limit times by which said retry routine is repeated.

13. A reproduction apparatus as set forth in claim 5, in which said retry controlling means is constituted by a reference counter indicative of said data search information and having a number referred by said retry controlling means to have said optical pickup move to said target address based on said first address of said data search information of said navigation pack.

14. A reproduction apparatus as set forth in claim 6, in which said retry controlling means has a reference counter indicative of said video title set map and having a number referred by said retry controlling means to have said optical pickup move to said target address based on said first address of said video title set map of said video title set information.

15. A reproduction method for reproducing digital information recorded on an optical disc, comprising the steps of:

a preparing step of preparing:

an optical pickup for reading said digital information recorded on said optical disc to have said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals

converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

information residue detecting means for detecting an amount of residue digital information remaining in said buffer memory;

retry controlling means for controlling said one or more times of retry routines based on said amount of residue digital information detected by said information residue means when said digital information fails to be read out of said optical disc; and

a retry controlling step of having said retry controlling means control said one or more times of retry routines based on said amount of residue digital information detected by said information residue detecting means when said digital information fails to be read out of said optical disc.

16. A reproduction method for reproducing digital information recorded on an optical disc, comprising the steps of:

a preparing step of preparing:

an optical pickup for reading said digital information recorded on said optical disc to have said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said

signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

said electric signals are decoded by said signal decoding means for a time interval;

time calculating means for calculating said time interval taken by said signal decoding means to discharge said electric signals decoded;

retry controlling means for controlling said one or more times of retry routine based on said time interval calculated by said time calculating means when said digital information fails to be read out of said optical disc; and

a retry controlling step of having said retry controlling means control said one or more times of retry routines based on said time interval calculated by said time calculating means when said digital information fails to be read out of said optical disc.

17. A reproduction method as set forth in claim 16, in which said buffer memory has at least two buffer memory sections consisting of an initial buffer memory section having said electric signals firstly stored at an initial time and a final buffer memory section having said electric signals finally stored at a final time; said time calculating means is for calculating the difference between said initial time and final time for said electric signals to be stored in said initial and final buffer memory sections; said retry controlling means is for controlling said one or more times of retry routines based on said difference between said initial time and final time calculated by said time calculating means; and said retry controlling step is of having said retry controlling means control said one or more times of retry routines based on said difference between said initial time and said final times calculated by said time calculating means.

18. A reproduction method as set forth in claim 16, in which said digital information has a plurality of groups of picture unit recorded on said optical disc after being compressed under a specific format, each of said groups of picture unit being

constituted by a plurality of pictures having a first picture, a last picture, and a plurality of intermediate pictures sequentially ordered between said first picture and said last picture; said electric signals are indicative of said groups of picture unit; and said pickup driving means has said optical pickup skip said address for each of said groups of picture unit when said digital information fails to be read out of said optical disc; and which further comprises a pickup driving means controlling step of having said optical pickup skip said address associated with said groups of picture unit when said digital information at said address fails to be read out of said optical disc by said optical pickup.

19. A reproduction method as set forth in claim 18, in which said digital information has a navigation pack and a plurality of groups of picture unit, said navigation pack including a data search information having respective first address; said electric signals are indicative of said groups of picture unit; said pickup driving means has said optical pickup skip said address for each of said groups of picture unit when said digital information fails to be read out of said optical disc; and said retry controlling means is for having said retry controlling means control said one or more times of retry routines based on said data search information.

20. A reproduction method as set forth in claim 18, in which said digital information has a video title set information and a plurality of groups of picture unit, said video title set information including a video title set time map having respective first address; and said retry controlling means is for having said retry controlling means control said one or more times of retry routines based on said video title set time map.

21. A reproduction method for reproducing digital information recorded on an optical disc, comprising the steps of:

a preparing step of preparing:

an optical pickup for reading said digital information recorded on said optical disc to have said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one

or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

external damage detecting means for detecting external damages on the surface of said optical disc;

retry controlling means for controlling said one or more times of retry routines based on said external damages detected by said external damage detecting means; and

a retry controlling step of having said retry controlling means control said one or more times of retry routines based on said external damages detected by said external damage detecting means, said one or more times of retry routines being repeated by a first retry time at a first address with said external damages and by a second routine time at a second address without said external damages, said first time being smaller than said second time.

22. A reproduction method as set forth in claim 21, in which said preparing step is of further preparing external damage registration means for registering addresses with external damages of said optical disc; and a registering addresses memory for storing said addresses with damages being registered by said retry controlling means; and which further comprises; a registering addresses step of registering said addresses with damages of said optical disc by said retry controlling means.

23. A reproduction method as set forth in claim 22, in which said reproduction apparatus further comprises second external damage registration means constituted by a nonvolatile memory adapted to hold said digital information stored in said nonvolatile memory after the reproducing apparatus is out of power; and in which said registering addresses step is of registering in said registering addresses memory, said registering addresses being said addresses with said damages of said optical disc constituted by a nonvolatile memory adapted to hold said digital information after the

reproducing apparatus is out of power.

24. A reproduction method for reproducing digital information recorded on an optical disc, comprising the steps of:

a preparing step of preparing:

an optical pickup is movable in the radial direction of said optical disc to assume radial positions to read said digital information converted into electric signals, said digital information containing errors appearing when said digital information is read by said optical pickup;

signal amplifying means for amplifying said electric signals converted from said digital information read by said optical pickup;

signal processing means for processing said electric signals in one or more times of retry routines to correct said errors outputted as said electric signals from said signal amplifying means;

a buffer memory for storing said electric signals outputted from said signal processing means;

signal decoding means for decoding said electric signals stored in said buffer memory and outputted from said buffer memory;

pickup driving means for driving said optical pickup to move on said optical disc, said errors being associated with respective addresses to be targeted by said optical pickup when said optical pickup is moved by said pickup driving means;

radial position detecting means for detecting said radial position of said optical pickup;

retry controlling means for controlling said one or more times of retry routines based on the radial position of said optical pickup detected by said radial position detecting means when said digital information fails to be read out of said optical disc; and

a retry controlling step of having said retry controlling means control said one or more times of retry routines based on said radial position of said optical pickup detected by said radial position detecting means when said digital information fails to be read out of said optical disc.